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distribution in the Sub-Carboniferous and there exist, up through all the coal-measures, under the most favorable conditions possible for preservation, without discovery is very improbable. There is no example of a plant existing through such a lapse of time and such geologic changes as intervene between the Devonian and the Trias. Even if the fossils were *Lepidodendron* at all, to identify them with the most ancient species would certainly seem erroneous.

It may be said that Prof. Lesquereux does not call the fossil *L. Veltheimianum* positively, only "as distinctly as a specific representation can be made upon a decorticated trunk." That is, however, pretty decided, for decorticated specimens have been his basis for new species. It would seem to have been better to regard these fossils, if *Lepidodendron* at all, as a new species, if for no other reason than their separation in time from the Lower Carboniferous species.

I should have been pleased to examine the fossils themselves; but I have seen other fossils from the same region which are so similar in appearance as to leave little doubt of their identity in kind, and they are not *Lepidodendron*. And we may confidently believe that the genus has not been discovered in rocks later than the Carboniferous.

NOTE: The above article was written a year ago, but its publication has been delayed in the hope of seeing the specimens, and so placing the matter beyond doubt. Recently, I have examined some fossils from the same locality and of precisely the same character as those in question; and my suggestion that the furrowed surface shown in the photographs probably represented the wood, is fully confirmed. Considerable of the bark is in position, and carbonized, but the exterior surface shows not the slightest trace of quincunx markings. The photographs represent the same condition, but before seeing these specimens I could not assert that the smooth external layer was carbonized cortex. This fact alone is sufficient to establish beyond question its distinctness from *Lepidodendron*.

§ 59. New Species of North American Fungi.

By J. B. ELLIS.

MARASMIUS PYRINUS.—Minute, about 1-4th of an inch high; pileus membranaceous, hemispheric, sometimes slightly umbilicate, sulcato-striate, pale at first, becoming chestnut-brown, .04′—.045′ diameter; stipe filiform, striate, brown, paler above; spores obovate, .00015′ long. The outer coat of the pileus consists of a layer of ovate, echinulate, spore-like bodies, something like the spores of a *Scleroderma*.

On decaying pear-leaves lying on the ground. June, 1880. (Ellis, *N. Am. Fungi*, No. 401).

CORTICIUM ECHINOSPORUM.—Effused, indeterminate, hymenium sulphur-yellow, forming a thin, soft, sub-membranaceous stratum on the loosely-compacted threads of the subiculum, which form a scanty, evanescent, light-colored margin; basidia clavate, spicules rather long, bearing at their tips the globose, echinulate spores, which are in diameter .00015′—.0002′.

On wood and bark of pine, November.

ARTHROSPORIUM COMPOSITUM.—White, tufted or subconfluent; stems about 1-16th of an inch high, composed of compacted threads, whose free ends form lateral branches which bear fusiform, 3-septate conidia, .0013′—.0015′x.0002′ in size.

On dead limbs of *Kalmia* buried under old leaves in swampy woods. Autumn. (Ellis, *N. Am. Fungi*, No. 415).

SPHAERONEMA SPHAEROIDEUM.—At first covered by the epidermis, through which the coarse, brown hairs that clothe the perithecia are clearly visible; soon erumpent, bald and rough, nearly as large as a small turnip-seed; ostiolum subconic, soon collapsing; stylospores clavato-fusiform, slightly curved and faintly 3-septate, obtuse above and narrowed below into a slender stipe, together with which it is about .0015′ long.

On dead herbaceous stems, Pleasant Valley, Utah. S. J. Harkness.

GRAPHIUM LAXUM.—Gregarious, gray; stems short and thick, the threads spreading above and bearing fusiform-cylindric, 2-septate conidia, .002′ long.

Makes a near approach to *Cercospora*. On living bean-leaves. West Chester, Pa., September, 1880. W. T. Harris. (Ellis, *N. Am. Fungi*, No. 546).

CERCOSPORA ILICIS.—Seated on brown spots, which are limited by a narrow, raised border; amphigenous, tufted; hyphae septate, subnodulose, .002′—.0025′ high, bearing at their tips clavato-cylindric, hyaline, nucleate, and at length 1–3-septate conidia, which are .001′—.002′ long.

On living leaves of *Ilex glabra*, July.

CERCOSPORA ACETOSELLA.—Forming leaden-gray patches on the dead and withered leaves; scattered thickly in minute tufts; the erect hyphae short and sparingly septate, bearing at their tips linear-clavate, nucleate conidia, .002′—.0025′ long.

On *Rumex Acetosella*, September.

PROPOLIS GLAUCA.—Outward appearance the same as that of *P. versicolor*, Fr., but the disk always glauco-cinereous; asci broad-cylindric, sessile, .00033′x.0007′; paraphyses abundant, crisped and branched at their tips; sporidia uniseriate, oblique, broadly elliptical, hyaline, binucleate, constricted in the middle and about .0007′x .0005′.

On bark of dry, dead twigs of *Quercus coccinea*, August. (Ellis in Rehm's *Ascomycetes*, No. 465).

STICTIS PUSTULATA.—Pustuliform, black, closed at first but soon perforated in the centre by a white, pruinose mouth, which is nearly closed by the incurved, subfimbriate margin; asci cylindric, narrow, .0035′ long; sporidia filiform, as long as the asci. Hymenium dark and shining when dry.

On old stems of *Trifolium pratense* lying on the ground, April.

AILOGRAPHUM CULMIGENUM.—Very minute, scarcely visible to the naked eye, and lying in different directions on the matrix, linear, straight or bent; asci ovato-globose, with a short stipe, about .0005′x .0003′, filled with hyaline sporidia, which *appear* to be ovato-pyriform and about .0002′x.000075′.

On basal sheaths of old *Andropogon*. January.

PEZIZA (SARCOSCYPHAE) HAINESII.—Sessile, urceolate, 1′—1′.5 diameter, creamy-white within, covered with a rufous-brown, piloso-tomentose coat, which is more distinct in the young plant, veined or subplicate and lacunose at the base, mouth at first closed by the marginal fringe of brown, septate, minutely-rough hairs; asci long, cylindric ; paraphyses simple, septate below, stout, not thickened above; sporidia uniseriate, rather acutely elliptical, filled with coarse granular matter and nuclei, .001′x.0005′.

Inside of an old stump, West Chester, Pa. W. T. Haines, August, 1879. (Ellis, *N. Am. Fungi*, No. 562.)

Peziza (Dasyscyphae) miniopsis.—Gregarious, sessile minute, .02′—.03′ across, clothed with a white tomentose coat of crisped hairs; disk scarlet and cup-shaped; asci clavato-cylindric, .0038′x .0005′; sporidia crowded, linear-lanceolate, .002′—.0025′ long, yellowish, nucleate and finally multiseptate; paraphyses filiform, not thickened above. The disk is orange when fresh and scarlet when dry.

On outer bark of living *Acer rubrum*. June. (Ellis, *N. Am. Fungi*, No. 563).

§ 60. **Lichens or Fungi?**—I wish to ask the attention of botanists interested, to a forthcoming work of great research on the limits of the two classes named above. Dr. Arthur Minks of Stettin, Prussia, has already, by his "Contributions to the Knowledge of the Structure and Life of Lichens" (*Beiträge*, etc., pp. 126, and 2 plates, 1876), and especially by his larger work on "The Microgonidium" (pp. 250, and six plates, 1879), conciliated the thorough respect of all unprejudiced lovers of science. He has now begun another undertaking which appeals to mycologists even more than to lichenists. The evident approaches between the vast realm of the Fungi and the smaller, but higher and more readily comprehended domain of the Lichens, have been explained in such a way that, while a great deal remained evidently unsettled, the lichenologist gained the advantage of understanding after some fashion his position, while the mycologist (I venture here to speak from my own correspondence) found himself often in doubt, and without, it seemed, any sufficient criterion of judgment. It is surely interesting then, that, taking his departure from the essential distinction (as he undertakes to demonstrate it to be) between the *theca* of Lichens and the *ascus* of Fungi, Dr. Minks finds himself now in position to declare that the boundary line separating the Lichen-world from that of the Fungi runs far within the present limits of the latter; and that we are henceforth to look not (with Sachs, *Lehrbuch*, edit. 3, p. 266) towards an ill-assorted union of Lichens with the Ascomycetes, but quite the other way. Many thousands of species of so-called Fungi are thus to be elevated, or relegated to the other class; and a most important step in this way taken towards the removal of manifest, and not by every one approachable, difficulties of the System of Plants.

Dr. Minks proposes to give sufficient anatomical-morphological sketches of every species examined by him, not excluding the discussion of generical and species-values, much in the manner of his "Morphologisch-Lichenographische Studien," in *Flora*, 1880, n. 33, 34. He will also fully consider such plants as, while appearing to belong to the number of those which are well-associable in some or other re-